CHAPTER 1

INTRODUCTION

1.1 PREFACE

This chapter will discuss on the background and rationale of this study. It also covers on research background which is significantly related to the project objectives, project scopes, and problem statements.

1.2 BACKGROUND OF STUDY

Nowadays, the automotive industry in Malaysia is recognized as one of the freshest and provides most steadily growing markets, where it provides the world needs widely except for America and Continental Europe. Malaysia is stated as the third South-East Asian auto maker where it produced more than half a million vehicles over a year assisted by Japan and Korea. Proton Edar (PeRusahaan OTOmobil Nasional), Perodua (PERusahaan Otomobil keDUA), and DRB-HICOM (Diversified Resources Berhad – The Heavy Industries Corporation of Malaysia Berhad) are among the most notable automotive giants in Malaysia industry.

Parallel with the growing and the establishment of the automotive industry, the automotive component industry also rapidly evolved in order to support and provide the industry with the automotive partial components. Because of that, the demand of automotive parts increased tremendously as the most of automotive parts; from small to large parts, and sophisticated parts have been localized for internal fabrication.

Consequently, many automotive components suppliers or vendors from Malaysia and foreign countries have placed a large sum of money to raise plants and support the automotive manufacturers in Malaysia and entrusted the local vendors to supply the automotive partial components to them.

As the demand increased in automotive components, the companies are forced to determine the solution to increase their productivity in order to satisfy the customer requests. Various existed and fully developed techniques, methodologies and productivities strategies are available but yet still can be improvised to suit the current situation in order to determine the ultimate productivity approaches. Of course, as today's industries competitive, every company must create a quick but efficient decision to improve and adapt their operating system in order to survive the global challenges and be on top in their respective discipline. In manufacturing organizations, to improve their system it might mean to reduce the operating costs that come from the wastes in production line.

Waste is defined as any activity that does not add any value to the products or services. The activity that does not add value to the products or services means that the client is not willing to pay more money for this activity. Waste can be viewed as the single obstacle that can define a business over time, unless they are identified and systematically wiped out. Waste elimination is one of the most effective ways to increase profitability in manufacturing. To eliminate waste, it is important to understand exactly what waste is and where it exists. While products differ in each factory, the typical wastes found in manufacturing environments are quite similar.

Generally, there are 7 forms of wastes identified in lean manufacturing; overproduction, transportation, motion, waiting, processing, inventory and defects. This paper focus on the two of the forms; motion (people or equipment moving or walking more than is required to perform the processing) and waiting (waiting for the next production step). These wastes can be triggered by various factors such as incorrect plant layouts, lack of proximity of machines and waiting workers, machines and

materials. Plant layout design and material handling methods will be the main focal point of this study due to its large contribution in waste elimination.

The plant layout is a very critical role in running an efficient and cost effective business. All work areas, production lines, material storage facilities, etc. should be designed to perform to its highest rate and the corresponding to the shortest cycle time. When designing a plant layout, it is necessary to take into account all the functions within the production plant. The pattern must include not only the needs for the present production levels but should also have provisions for future expansion. This is included to avoid frequent and costly changes to the design as demand increases.

The efficient layout design is important for reducing the operations and management costs. The basic objective of layout is to ensure a smooth flow of work, material, and information through a system. Although, there are several indicators and objectives to the facility layout problem, the most commonly used objective is the reduction of material handling.

Material handling is defined as the art and science of moving, packing, and storing of substances in any form. Material handling is a very vital component of the design and the needs of a manufacturing facility. Efficient material handling is important to manufacturing operations. Materials must be unloaded, moved through inspections and it needs to be properly stored and transferred to and from workstation/centers with a view towards minimizing the movement and avoiding harm to the merchandise.

These motions do not add value to the product but they do add value to the production cost. The cost of this being implemented incorrectly could affect the profitability of the business and also could endanger the employees. In some instances special handling equipment may be necessary to ensure that the material is handled properly.